

REMARKS/ARGUMENTS

Favorable reconsideration of this application is requested in view of the above amendments and in light of the following remarks and discussion.

Claims 1-20 are pending in the present application. Claim 1 is amended. Claims 11-20 are withdrawn. Support for the amendment to Claim 1 is self-evident. Thus, no new matter is added.

The outstanding Office Action rejected Claims 1-10 under 35 U.S.C. § 112, second paragraph, as indefinite; rejected Claims 1, 3, and 5-8 under 35 U.S.C. § 103(a) as unpatentable over Vowles et al. (U.S. Patent No. 5,076,205, hereinafter “Vowles”) in view of Kaveh et al. (U.S. Patent No. 5,758,680, hereinafter “Kaveh”) and Lappen et al. (U.S. Patent No. 7,032,614, hereinafter “Lappen”); rejected Claims 2 and 4 under 35 U.S.C. § 103(a) as unpatentable over Vowles in view of Kaveh and Lappen and further in view of Moriya et al. (U.S. Patent No. 5,441,076, hereinafter “Moriya”); and rejected Claims 9-10 under 35 U.S.C. § 103(a) as unpatentable over Vowles in view of Kaveh and Lappen and further in view of Young, Jr. (U.S. Patent No. 6,578,600, hereinafter “Young”).

In response to the rejection of Claims 1-10 under 35 U.S.C. § 112, second paragraph, as indefinite, Claim 1 is amended to recite that the gas applied systems are provided at the processing chambers. Accordingly, Applicants respectfully request the rejection of Claims 1-10 under 35 U.S.C. § 112, second paragraph, be withdrawn.

Applicants respectfully traverse the rejection of Claims 1, 3, and 5-8 under 35 U.S.C. § 103(a) as unpatentable over Vowles in view of Kaveh and Lappen.

Amended independent Claim 1, recites, in part:

a flow rate control unit for controlling flow rates of the predetermined gases, the flow rate control unit being disposed on gas lines through which the gases are supplied from the primary-side connection unit to the corresponding processing chamber, the flow rate control unit being disposed above the

primary-side connection unit so as to at least partially overlap therewith.

Thus, each of the gas supply systems includes a flow rate control unit for controlling flow rates of the predetermined gases. The flow rate control unit is disposed on gas lines through which the gases are supplied from the primary-side connection unit to the corresponding processing chamber. The flow rate control unit is disposed above the primary-side connection unit so as to at least partially overlap therewith. Applicants have recognized that one benefit of the above-noted feature is that this arrangement helps to make the gas supply system compact in structure, thus reducing the footprint of the processing apparatus.¹

Turning now to the cited art, Vowles describes a semiconductor multi-chamber processing apparatus and gas supply systems that are provided at the processing chambers. However, the outstanding Office Action acknowledges that Vowles fails to disclose or suggest a gas supply system that includes a flow rate control unit for controlling the flow rates of the predetermined gases, that the flow rate control unit is disposed on gas lines through which the gases are supplied from the primary side connection unit to the corresponding chamber, and that the flow rate control unit is disposed above the primary side connection unit so as to at least partially overlap therewith.² Instead, the outstanding Office Action relies on Kaveh for the gas supply systems.

Kaveh describes a gas delivery system (128) that introduces process gases into the reaction chamber (106) through a gas ring (134).³ The gas delivery system (128) supplies processed gases to the reaction chamber via multiple gas flow paths which comprise manual shut-off valves (138), primary shut-off valves (140), mass-flow controllers (142), and gas-mixing manifolds (144).⁴ The outstanding Office Action asserts that the manual shut-off

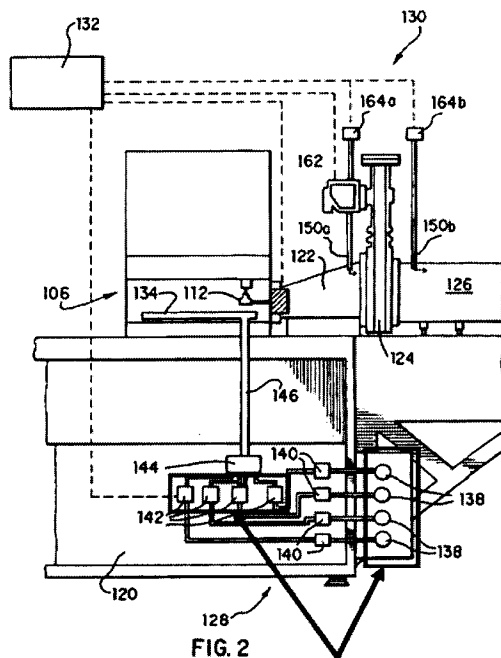
¹ See specification at page 6, line 20 to page 17, line 17.

² See outstanding Office Action at page 4.

³ See Kaveh at column 4, lines 24-25.

⁴ See Kaveh at column 4, lines 28-32.

valve (138) is a primary side connection unit and the mass-flow controller (142) is a flow rate control unit.⁵ However, as shown below in annotated Figure 2, the mass-flow controller (142) is not disposed above the manual shut-off valve so as to at least partial overlap therewith.



Mass-flow controller (142) is **NOT** disposed above the manual shut-off valve (138) and does **NOT** partially overlap the manual shut-off valve (138)

Lappen fails to remedy the deficiencies discussed above regarding Vowles and Kaveh in relation to amended independent Claim 1. Instead, Lappen is silent regarding a gas supply system that includes a flow rate control unit for controlling the flow rates of the predetermined gases, that the flow rate control unit is disposed on gas lines through which the gases are supplied from the primary side connection unit to the corresponding chamber, and that the flow rate control unit is disposed above the primary side connection unit so as to at least partially overlap therewith.

Accordingly, no reasonable combination of Vowles, Kaveh, and Lappen would include all the features recited in amended independent Claim 1, or claims depending

⁵ See outstanding Office Action at page 5.

therefrom. The other cited references to Moriya and Young were applied for other features recited in dependent claims and do not provide any additional support for concluding that Claim 1 would have been obvious. Therefore, Applicants respectfully request the rejection of Claims 1-10 under 35 U.S.C. § 103(a) be withdrawn.

Applicants wish to make additional arguments regarding Claim 6, which recites that the outer portion of the flow rate control unit is located out of a plan view contour of the corresponding processing chamber and wherein the cover constitutes at least part of front and top surfaces of the gas box. The cited references fail to disclose or suggest that the outer portion of the flow rate control unit is located out of a plan view contour of the corresponding processing chamber. The outstanding Office Action asserts:

With respect to claims 5 and 6, which are drawn to the arrangement of the aforementioned structure, the courts have ruled that the mere rearrangement of parts which does not modify the operation of a device is prima facie obvious.⁶

Applicants respectfully disagree. MPEP § 2144.04(VI)(C) states:

The prior art must provide a motivation or reason for the worker in the art, without the benefit of appellant's specification, to make the necessary changes in the reference device." *Ex parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984).

Applicants respectfully submit that the cited references fail to provide a motivation or reason to locate an outer portion of a flow rate control unit out of a plan view contour of a corresponding processing chamber. Accordingly, for at least the above-noted reasons, Applicants respectfully submit that Claim 6 further patentably distinguishes over any proper combination of the cited references.

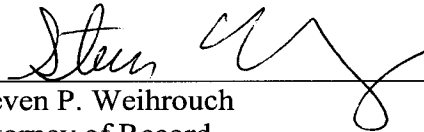
For the foregoing reasons, it is respectfully submitted that this application is now in condition for allowance. A Notice of Allowance for Claims 1-20 is earnestly solicited.

⁶ See outstanding Office Action at page 6.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact the undersigned representative at the below-listed telephone number.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read 'Steven', followed by a large, stylized flourish that extends to the right and loops back under the signature line.

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